CSc Practical Worksheet 1(Solution)

A'S
Paper 1

Topic: Data Representation

1 **(i)** Convert the following binary number into hexadecimal.

1011 1000

8	4	2	1
1	0	1	1
1	0	0	0

= B8

.....

(ii) Convert the following denary number into BCD format.

9 7

8	4	2	1
1	0	0	1
0	1	1	1

= 9 – 1 0 0 1
7 – 0 1 1 1

.....

(iii) Using two's complement, show how the following denary numbers could be stored in an 8-bit register:

114

128	64	32	16	8	4	2	1
0	1	1	1	0	0	1	0

- 93

93 –

128	64	32	16	8	4	2	1
0	1	0	1	1	1	0	1

1's – 1 0 1 0 0 0 1 0

+ 1

2's – **1 0 1 0 0 0 1 1(Ans)**

1 (a) (i) Using two's complement, show how the following denary numbers could be stored in an 8-bit register:

124

`128	***64***	***32***	***16***	***8***	***4***	***2***	***1***
0	***1***	***1***	***1***	***1***	***1***	***0***	***0***

–77

`128	***64***	***32***	***16***	***8***	***4***	***2***	***1***
0	***1***	***0***	***0***	***1***	***1***	***0***	***1***

1's – 1 0 1 1 0 0 1 0

+ 1

2's – **1 0 1 1 0 0 1 1(Ans)**

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(ii) Convert the two numbers in **part (a) (i)** into hexadecimal.

124 – **7C(Ans)**

8	4	2	1
0	1	1	1
1	1	0	0

–77 – **B3(Ans)**

8	4	2	1
1	0	1	1
0	0	1	1

(b) Binary Coded Decimal (BCD) is another way of representing numbers.

(i) Write the number 359 in BCD form.

= 0011 0101 1001(Ans)

(ii) Describe a use of BCD number representation.

= Electronical display or calculator (Ans)

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